

ATION

ich  
he  
in  
to  
ges  
ith  
an-  
ots  
ge-  
ru-  
ng  
to  
nts  
m-  
ad-

draw-  
charts  
works

brush  
volts  
proof

utting

yonet  
250

, oil,

htha,  
al-tar

opper

non-  
and

April  
1934

See Article, Page 63



# AMERICAN STANDARDS ASSOCIATION

29 West Thirty-Ninth Street

New York

*The American Standards Association is organized to provide systematic means of cooperation in establishing American Standards to the end that duplication of work and the promulgation of conflicting standards may be avoided; to serve as a clearing house for information on standardization work in the United States and foreign countries; to act as the authoritative American channel in international cooperation in standardization work*

## ASA MEMBER-BODIES

AM. GAS ASSOCIATION  
AM. HOME ECONOMICS ASSN.  
AM. INSTITUTE OF ELEC. ENGINEERS  
AM. INSTITUTE OF MINING & METALLURGICAL ENGINEERS  
AMERICAN PETROLEUM INSTITUTE  
AM. RAILWAY ASSOCIATION  
AM. SOC. OF CIVIL ENGINEERS  
AM. SOC. OF MECHANICAL ENGRS.  
AM. SOC. OF SANITARY ENGINEERING  
AM. SOC. FOR TESTING MATERIALS  
AM. TRANSIT ASSOCIATION  
ASSN. OF AM. STEEL MANUFACTURERS  
TECHNICAL COMMITTEES  
CAST IRON PIPE RESEARCH ASSN.

ELECTRIC LIGHT AND POWER GROUP:  
ASSN. OF EDISON ILLUM. COS.  
EDISON ELECTRIC INSTITUTE  
FIRE PROTECTION GROUP:  
ASSOCIATED FACTORY MUTUAL FIRE INSURANCE COMPANIES  
NAT. BD. OF FIRE UNDERWRITERS  
NAT. FIRE PROTECTION ASSN.  
UNDERWRITERS' LABORATORIES  
INSTITUTE OF RADIO ENGINEERS  
INTERNAT. ACETYLENE ASSOCIATION  
LIGHT METALS GROUP:  
ALUMINUM COMPANY OF AMERICA  
MFRS. STANDARDIZATION SOC. OF THE VALVE AND FITTINGS INDUSTRY  
NAT. ASSN. OF MUTUAL CASUALTY COMPANIES

NAT. BUREAU OF CASUALTY AND SURETY UNDERWRITERS  
NAT. ELECTRICAL MFRS. ASSN.  
NAT. MACHINE TOOL BUILDERS' ASSN.  
NAT. SAFETY COUNCIL  
THE PANAMA CANAL  
SOC. OF AUTOMOTIVE ENGINEERS  
TELEPHONE GROUP:  
BELL TELEPHONE SYSTEM  
U. S. DEPARTMENT OF AGRICULTURE  
U. S. DEPARTMENT OF COMMERCE  
U. S. DEPARTMENT OF INTERIOR  
U. S. DEPARTMENT OF LABOR  
U. S. GOVT. PRINTING OFFICE  
U. S. NAVY DEPARTMENT  
U. S. WAR DEPARTMENT

Howard Coonley, *President*

F. E. Moskovics, *Vice-President*

P. G. Agnew, *Secretary*

Cyril Ainsworth, *Assistant Secretary*

Leslie Peat, *Editor*

Ruth E. Mason, *Assistant Editor*

## This Issue:

*Front Cover, Courtesy of Sullivan Machinery Company*

### Coal Classification is Boon to Industry. By A. C. Fieldner . . . . . 63

*(Abstract of Proposed Tentative Standards for the Classification of Coals by Rank and by Grade, are now made available for the first time for operators, consumers and NRA Coal Code Authorities.)*

### Bureau to Aid Consumer Standards Program is Suggested. By Robert A. Brady . . . 68

### Broad Petroleum Standards Project is Proposed Under ASA Procedure . . . . . 70

### Wide Range of Electrical Symbols Correlated . . . . . 71

### American Standard Safety Codes Play Important Part in NRA. By Cyril Ainsworth . . 73

### How Industrial Sanitation Code was Developed Under ASA . . . . . 76

### Electrical Insulating Committee . . . . . 70

### Stanley Griswold Flagg, Jr. . . . . 70

### Constant Current Transformer Standards . . . . . 72

### Hosiery Standards Submitted . . . . . 72

### Willard Heads Illinois . . . . . 72

### Swimming Pool Standards Needed . . . . . 75

### Petroleum Institute is ASA Member . . . . . 75

### Anthracite Coal Burner Code . . . . . 77

### Halsted Joins ASA Staff . . . . . 77

### Classification of Industrial Lubricants . . . . . 77

### Oil & Gasoline Separators . . . . . 78

### Yarn Maker Controls Quality . . . . . 78

### A.S.T.M. Regional Meeting . . . . . 78

### India May Organize Standards Body . . . . . 78

### Status of Transportation Projects . . . . . 79

### R. L. Ireland, Jr., Elected to Board . . . . . 80

### Publications Available . . . . . 80

### Mutual Casualty Companies Get Service . . . . . 80

### Milling Cutter Sizes Reduced . . . . . 80

### Hypodermic Needle Sizes . . . . . 80

### Foxboro Co. Joins ASA . . . . . 80

APRIL  
1934

Published by the American Standards Association with the cooperation  
of the National Bureau of Standards

Subscription price \$4.00 per year (foreign \$5.00); single copies 35 cents

Vol. 5  
No. 4

# Coal Classification Is Boon to Industry

by

A. C. Fieldner

*Chairman, Sectional Committee  
on the Classification of Coals.*

FOR the first time in history the consumer—large and small—will be able to order coal and know what will be delivered.

Coal has always been marketed on the basis of more or less incomplete information. Frequently, the *producer* has had little conception of the properties of the coal he was mining or selling and perhaps just as frequently the *consumer* has known little about his requirements and less about properties of the coal he has purchased. The resulting chaotic conditions have been a source of public concern, affecting alike the coal mining village, producing and distributing agencies, and the ultimate consumers—both industrial and domestic.

Coal production in the United States, averaging annually around 500 million tons from more than 6,000 mines in 30 states of the Union, greatly exceeds the tonnage shipments of any other commodity or natural group of commodities. The combined coal reserves of the United States and Canada are estimated at two-thirds of the world's known supply.

## **Many Systems Proposed**

During the past 100 years many systems of classification of coal have been proposed. Several of these have become widely known and have provided broad, general designations for various ranks of coal. But they do not meet the demands of today and have not been widely adopted.

Realization of this situation brought about a united effort and in 1926 it resulted in the formation of a sectional committee fully representative of producing, distributing, and consuming interests together with governmental experts and

*Scientific Tool is Now Made  
Available for Both Buyer and  
Seller in Proposed Tentative  
Specifications of Coals by  
Rank and Grade*

delegates from technical societies. With the American Society for Testing Materials as sponsor under the auspices of the American Standards Association, this committee has been engaged for more than seven years in an extensive investigation of North American coals.

Proposed tentative specifications covering the classification of coal by rank and by grade, just published by the A.S.T.M. and summarized here on pages 66 and 67, complete an important part of the work of this committee. These specifications, approved recently by the committee, have not as yet been formally accepted by the Society or approved by the ASA but such action is anticipated.

Publication is being made at this time in response to urgent requests by NRA Coal Code authorities for assistance in setting up regional schedules covering the production and marketing of coals in various sections of the country. The report of the committee and the specifications are available from the headquarters of the A.S.T.M., 260 South Broad St., Philadelphia, Pa., or from the ASA office.

## **History of Project**

Emphasis upon the development of a useful and practical system, or systems, for the classification of coal has been the aim of all associated with this project from its inception. Undertaken at the request of the Coal Mining Institute of America, this subject has been studied by a representative sectional committee under the technical direction of the American Society for Testing

### Appreciation

On behalf of the American Standards Association, I congratulate the American Society for Testing Materials, the officers and members of the Sectional Committee on the Classification of Coals, the cooperating bodies—Canadian and American—and the technologists who have participated in this work for their achievement in bringing this program to its present stage.—*Howard Coonley, President.*

Materials. The correlation of data and the conduct of research campaigns have been under the supervision of three technical committees on scientific classification, use classification, and marketing practice, until the recent consolidation of the first two groups into one body.

To assist the technical committees several subcommittees have been actively engaged in investigations to determine the adaptability of different coals to various uses, to study the occurrence of North American coals and their composition and origin, and to consider suggested systems of classification. In addition to the members of the sectional committee, many other technologists have actively participated in obtaining acceptable solutions of the various problems considered by the committee.

Cooperation with the Associate Committee on Coal Classification of the National Research Council of Canada has been closely maintained since the inception of this project, thus avoiding unnecessary duplication of research. Meetings of the Canadian and American Groups have been attended by representatives of the other committee.

Contact with foreign countries has been established through the American Committee of the World Power Conference, to which group reports of the progress of the sectional committee have been transmitted. British industry has been kept advised of the status of this project through close relationships maintained by the U.S. Bureau of Mines and the Fuel Research Board of Great Britain.

Since its organization the sectional committee and its associated technical and subcommittees have held frequent meetings. Detailed reports and papers have been published on the nature, mode, and occurrence of coals; classification systems; physical and chemical characteristics and methods for determining these properties; coal for gas and coke production; marketing practices in dif-

ferent sections of the country; domestic fuels, railroad fuel; coal for cement, ceramics and metallurgical industries; suitability of different coals for use on stokers, both domestic and industrial; etc. Symposia held in conjunction with the annual meetings of the American Institute of Mining and Metallurgical Engineers in 1930, 1932, and 1934 have been effective in pointing up interest in the various phases of the problems under consideration by the committee.

### Essential Factors in Coal Classification

The committee recognized that coals could be usefully classified according to their inherent composition and properties, along three different lines:

1. By rank, or according to the degree of metamorphism or progressive alteration in the the natural geological process from lignite to anthracite.
2. By grade, or according to nature and amount of impurities in the coal, sizes of lumps, etc.
3. By type, or varieties such as common, cannel, boghead or algal, and splint coals. (The work on this classification has not reached the point where it can be published.)

Only those classifications of coal relating directly to the inherent properties or characteristic behaviour of the fuel, such as proximate and ultimate analysis, heat value, mineralogic description, purity, caking properties, strength, ability to resist weathering, combustion behaviour, etc., are considered in the report of the sectional committee. Many other points were suggested for consideration by the committee, but were eliminated in the interest of practicability.

To facilitate the work of direct comparison of different systems of coal classification, a special chart was devised. Coals were then plotted on this chart according to their proximate analysis, ultimate analysis and calorific value and on several purity bases. Thus, the locus of various boundary lines and the physical properties of coal were shown simultaneously.

In America, from an early date, proximate analysis has been preferred to ultimate analysis for the classification of coal according to rank. For years coals have been plotted either according to their fixed carbon (or volatile matter) contents and B.t.u., or according to their ultimate analyses. Results obtained with either method from graphical studies of hundreds of American and foreign coals were found to be similar, however. The combination of fixed carbon and B.t.u. was chosen by the committee because (1) these figures are nearly always available or may be obtained at small cost; (2) this method more

nearly conforms to long-established American usage.

The committee decided that the typical, or bed-moisture, content must be recognized when classifying lignitic, subbituminous, and the higher-moisture bituminous coals, but that it was unnecessary to use the moist basis when classifying the high-rank bituminous and anthracite coals.

Calculation to the mineral-matter-free basis has been specified for the classification of coal by rank. For accurate work, the ordinary "ash-free" basis is not satisfactory, since the weight of ash left in the standard determination is distinctly less than the weight of mineral impurities present in the raw coal. This is due to loss of water from hydrated minerals, carbon dioxide from carbonates, conversion of pyrites to iron oxide, etc. Studies have been made of float-and-sink methods, and acid treatments to obtain low-ash or ashless coal, and exhaustive studies have been made of several average correction formulas which can be applied to the regular analyses.

It was found desirable to include agglutinating specifications in establishing the boundary between anthracite and bituminous classes, and between bituminous and subbituminous classes. Should an agglomeration test, now being investigated, prove to be more satisfactory, it may be substituted for the agglutinating test.

Most low-rank coals have a characteristic tendency to "slack" or break up when exposed to the weather during shipment and storage. Because there was no established method for measuring this important characteristic, a test procedure had to be developed.

### Boundary Line Problems

Studies of the enormous coal reserves of the United States and Canada have indicated that there is a lack of abrupt natural divisions in the properties of coals. Because typical varieties of coals grade into each other by minute degrees, the committee undertook an enormous amount of systematic study of thousands of analyses and tests of coals from practically every coal-bearing area in the United States and Canada. Areas for which existing analyses were questionable have been resampled and tested, through the cooperation of various governmental agencies in the two countries. The boundary lines given in "Specifications for the Classification of Coal by Rank," shown in abstract on page 67, form as good a classification for the purpose intended as can be developed from the present technical information available, the committee believes. Further revision will not be required except upon the basis of new information or unless certain other test methods are standardized in the future, it is believed.

The factors discussed above have all been of

This Sectional Committee on the Classification of Coals (M20) represents consumers, producers and governmental experts in the United States and Canada.

They, and scores of other technologists have worked for more than seven years to develop the proposed tentative classification, as described briefly in this article.

Chairman, *A. C. Fieldner*, U.S. Bureau of Mines.

Vice Chairman, *H. J. Rose*, Mellon Institute.

Secretary, *C. B. Huntress*, National Coal Association.

AMERICAN SOCIETY FOR TESTING MATERIALS (Sponsor), *A. C. Fieldner*

AMERICAN CERAMIC SOCIETY, *W. H. Fulweiler*

AMERICAN CHEMICAL SOCIETY, *H. H. Lowry*

AMERICAN GAS ASSOCIATION, *W. Cullen Morris*

AMERICAN INSTITUTE OF MINING AND METALLURGICAL ENGINEERS, *Harold J. Rose*

AMERICAN MINING CONGRESS, *Warren R. Roberts, Henry Mace Payne (alt.)*

AMERICAN SOCIETY OF MECHANICAL ENGINEERS, *F. R. Wadleigh*

AMERICAN TRANSIT ASSOCIATION, *H. A. Kidder, Arthur E. Ellis (alt.)*

AMERICAN WHOLESALE COAL ASSOCIATION, *E. H. Zimmerman*

ANTHRACITE INSTITUTE, *E. W. Parker, R. H. Buchanan (alt.)*

ASSOCIATION OF STATE GEOLOGISTS, *Geo. H. Ashley, Harold E. Culver, F. H. Reed, G. H. Cady (alt.)*

COAL MINING INSTITUTE OF AMERICA, *W. E. Fohl*  
ELECTRIC LIGHT AND POWER GROUP, *S. B. Flagg, Alexander Maxwell (alt.)*

INTERNATIONAL RAILWAY FUEL ASSOCIATION, *Malcolm Macfarlane*

NATIONAL ASSOCIATION OF PURCHASING AGENTS, *T. W. Harris*

NATIONAL COAL ASSOCIATION, *W. H. Cunningham, H. N. Eavenson, H. M. Ferguson*

NATIONAL RESEARCH COUNCIL, *Taisia Stadnichenko*

NATIONAL RETAIL COAL MERCHANTS ASSOCIATION, *Chas. B. Johnson*

SOUTHERN OHIO PIG IRON AND COKE ASSOCIATION, *D. J. Demorest*

U. S. DEPARTMENT OF COMMERCE, BUREAU OF MINES, *C. P. White*

U. S. DEPARTMENT OF INTERIOR, GEOLOGICAL SURVEY, *T. A. Hendricks*

MEMBERS-AT-LARGE, *S. P. Burke, R. E. Gilmore, Canadian Dept. of Mines, Ottawa; E. A. Holbrook and Charles O'Neill*

primary concern in the development of the classification by rank, but many of them have a direct bearing upon the classification of coal by grade. From the standpoint of use the essential factors are calorific value, ash and sulfur content, and ash-softening temperature, upon which the specifications for classification of coal by grade have been based. Further correlation of scientific data with the uses of coal and commercial practice are under way. Specifications for screen size, resistance to breakage, caking properties and other factors important in the use of coal for special purposes are under consideration by the committee.

The importance of adopting suitable names for the various classes and groups of coal was recognized by assigning this important subject to a technical committee on nomenclature. This committee consulted many authorities and gave careful consideration to the various names that have grown up in commercial usage and in the literature relating to coal. On the basis of this investi-

gation the names given in the columns headed "Class" and "Group" in the table on page 67 were recommended. Most of these names are well established by long usage and therefore will not lead to any confusion in the use of the new classification.

Although the committee was charged with developing a fundamental system, or systems, of classifying coals, the viewpoint of all connected with this project has been that any system should be usable and practical to producing, marketing, and consuming interests as well as acceptable to engineers and scientists. Sound technically, the specifications now proposed are intended to be working tools, not only for the determination of what coal is but to assist in deciding upon the particular field of usefulness of the coal under consideration. The committee, actively engaged upon questions requiring further investigation, will welcome suggestions on points covered by the specifications or any other phase of its work.

## ***Proposed Tentative Specifications for Classification of Coals by Rank***

*(An Abstract)*

### ***Scope***

These specifications cover the classification of coals by rank, that is, according to its degree of metamorphism, or progressive alteration, in the natural series from lignite to anthracite.

### ***Basis of Classification***

The basic scheme of classification is according to fixed carbon and calorific value (expressed in B.t.u.) calculated to the mineral-matter-free basis. The higher-rank coals are classified according to fixed carbon on the dry basis; and the lower-rank coals according to B.t.u. on the moist basis. Agglutinating and slacking indices are used to differentiate between certain adjacent groups.

### ***Classification by Rank***

(a) *Fixed Carbon and B.t.u.*—Coals shall be classified by rank in accordance with Table I. Coals having calorific values of 14,000 B.t.u. or more on the moist, mineral-matter-free basis, and coals having fixed carbon of 69 per cent or more on the dry, mineral-matter-free basis, shall be classified according to fixed carbon on the dry, mineral-matter-free basis; coals having calorific values less than 14,000 B.t.u. on the moist, mineral-matter-free basis shall be classified according to B.t.u. on the moist, mineral-matter-free basis, provided the fixed carbon on the dry, mineral-matter-free basis is less than 69 per cent.

(b) *Weathering Index.*—Coals showing average weathering indices of less than 5 per cent shall be considered non-weathering, a coal showing average weathering indices of 5 per cent or more shall be considered weathering from the standpoint of classification.

(c) *Agglutinating Index.*—Coals having average agglutinating indices of 500 g. or more at a ratio of 15 part sand to 1 part coal shall be considered agglutinating from the standpoint of classification.

### ***Symbols for Expressing Classification***

(a) The position of a coal in the scale of rank may be expressed in condensed form as in the following example:

(62—146)

in which the parenthesis signifies that the contained numbers are on the mineral-matter-free basis. The first number represents fixed carbon on the dry basis, reported to the nearest whole per cent. The second number represents B.t.u. on the moist basis, expressed as hundreds of B.t.u. (to the nearest hundred); for example, 14,580 B.t.u. would be represented as 146.

(b) When agglutinating or weathering properties enter into the classification of a coal, they shall be expressed outside and immediately following the parenthesis by the following symbols:

ag. = agglutinating  
na. = non-agglutinating  
we. = weathering  
nw. = non-weathering.

(c) Symbols describing the grade of coal shall be placed after the parenthesis, as shown in the following illustration:

(62-146) 132-A8-F24-S1.6

The numbers in parenthesis are on the mineral-matter-free basis, and give the position of the coal in the scale of rank as explained in Paragraph (a) of this section. The numbers and symbols following the parenthesis show the position of the coal according to classification by grade, that is, 132-A8-F24-S1.6 indicates a heating value of approximately 13,200 B.t.u., an ash content of 6.1 to 8.0 per cent, inclusive, an ash-softening temperature of 2400 to 2590 F, inclusive, and a sulfur content of 1.4 to 1.6 per cent, inclusive.

## Classification of Coal by Rank

(Table I)

Legend: F.C. = Fixed Carbon

V.M. = Volatile Matter

B.t.u. = British thermal units

Class	Group	Limits of Fixed Carbon or B.t.u. Mineral-Matter-Free Basis	Requisite Physical Properties
I. Anthracitic	1. Meta-anthracite.....	Dry F.C., 98 per cent or more (Dry V.M., 2 per cent or less)	Non-agglutinating <sup>a</sup>
	2. Anthracite.....	Dry F.C., 92 per cent or more and less than 98 per cent (Dry V.M., 8 per cent or less and more than 2 per cent)	
	3. Semianthracite.....	Dry F.C., 86 per cent or more and less than 92 per cent (Dry V.M., 14 per cent or less and more than 8 per cent)	
II. Bituminous <sup>c</sup>	1. Low volatile bituminous coal....	Dry F.C., 77 per cent or more and less than 86 per cent (Dry V.M., 23 per cent or less and more than 14 per cent)	Either agglutinating or non-weathering <sup>e</sup>
	2. Medium volatile bituminous coal	Dry F.C., 69 per cent or more and less than 77 per cent (Dry V.M., 31 per cent or less and more than 23 per cent)	
	3. High volatile A bituminous coal	Dry F.C., less than 69 per cent (Dry V.M., more than 31 per cent); and moist B.t.u., 14,000 <sup>d</sup> or more	
	4. High volatile B bituminous coal	Moist <sup>b</sup> B.t.u., 13,000 or more and less than 14,000 <sup>d</sup>	
	5. High volatile C bituminous coal	Moist B.t.u., 11,000 or more and less than 13,000 <sup>d</sup>	
III. Subbituminous	1. Subbituminous A coal.....	Moist B.t.u., 11,000 or more and less than 13,000 <sup>d</sup>	Both weathering and non-agglutinating
	2. Subbituminous B coal.....	Moist B.t.u., 9500 or more and less than 11,000 <sup>d</sup>	
	3. Subbituminous C coal.....	Moist B.t.u., 8300 or more and less than 9500 <sup>d</sup>	
IV. Lignite.....	1. Lignite.....	Moist B.t.u., less than 8300	Consolidated Unconsolidated
	2. Brown coal.....	Moist B.t.u., less than 8300	

<sup>a</sup> If agglutinating, classify in low-volatile group of the bituminous class.<sup>b</sup> Moist B.t.u. refers to coal containing its natural bed moisture but not including visible water on the surface of the coal.<sup>c</sup> Pending the report of the Subcommittee on Origin and Composition and Methods of Analysis, it is recognized that there may be non-caking varieties in each group of the bituminous class.<sup>d</sup> Coals having 69 per cent or more fixed carbon on the dry, mineral-matter-free basis shall be classified according to fixed carbon, regardless of B.t.u.<sup>e</sup> There are three varieties of coal in the High-volatile C bituminous coal group, namely, Variety 1, agglutinating and non-weathering; Variety 2, agglutinating and weathering; Variety 3, non-agglutinating and non-weathering.

## Proposed Tentative Specifications for Classification of Coals by Grade

(An Abstract)

### Scope

These specifications cover the classification of coals according to quality, as determined by calorific value, ash and sulfur content, and ash-softening temperature. Other properties, such as resistance to breakage, screen size and caking properties are under consideration.

### Classification by Grade

The calorific value of a coal shall be expressed in hundreds of B.t.u. to the nearest hundred, for example, 13,150 to 13,249 B.t.u., inclusive, shall be expressed as 132. The ash, softening temperature of ash, and sulfur content shall be expressed by symbols in accordance with the table herewith. For example, a coal designated as 132-A8-F24-S1.6, indicates a heating value of approximately 13,200 B.t.u., an ash content of 6.1 to 8.0 per cent, inclusive, an ash-softening temperature of 2400 to 2590 F., inclusive, and a sulfur content of 1.4 to 1.6 per cent, inclusive.

### Symbols for Expressing Classification

In reporting grade designations, the calorific value shall be given first, followed by the symbols separated by dashes, in the order shown in the example given in Section 2.

When both rank and grade of a coal are reported, the grade designation shall follow the rank designation as

### Symbols for Grading Coal According to Ash, Softening Temperature of Ash and Sulfur

(Analyses Expressed on the Basis of the Coal as Sampled)

Ash <sup>a</sup>		Softening Temperature of Ash <sup>b</sup>		Sulfur <sup>a</sup>	
Symbol	Per cent, inclusive	Symbol	Deg. Fahr., inclusive	Symbol	Per cent, inclusive
A4.....	0.0 to 4.0	F28.....	2800 and higher	S0.7.....	0.0 to 0.7
A6.....	4.1 to 6.0	F26.....	2600 to 2790	S1.0.....	0.8 to 1.0
A8.....	6.1 to 8.0	F24.....	2400 to 2590	S1.3.....	1.1 to 1.3
A10.....	8.1 to 10.0	F22.....	2200 to 2390	S1.6.....	1.4 to 1.6
A12.....	10.1 to 12.0	F20.....	2000 to 2190	S2.0.....	1.7 to 2.0
A14.....	12.1 to 14.0	F20 minus....	less than 2000	S3.0.....	2.1 to 3.0
A16.....	14.1 to 16.0			S5.0.....	3.1 to 5.0
A18.....	16.1 to 18.0			S5.0 plus....	5.1 and higher
A20.....	18.1 to 20.0				
A20 plus....	20.1 and higher				

<sup>a</sup> Ash and sulfur shall be reported to the nearest 0.1 per cent by dropping the second decimal figure when it is 0.01 to 0.04, inclusive, and by increasing the percentage by 0.1 per cent when the second decimal figure is 0.05 to 0.09, inclusive. For example, 4.85 to 4.94 per cent, inclusive, shall be considered to be 4.9 per cent.

<sup>b</sup> Ash-softening temperatures shall be reported to the nearest 10 F. For example, 2635 to 2644 F., inclusive, shall be considered to be 2640 F.

shown in Section 4 of the Tentative Specifications for Classification of Coal by Rank, as illustrated in the following example:

(62-146) 132-A8-F24-S1.6

The numbers in parenthesis are on the mineral-matter-free basis and give the position of the coal in the scale of rank. The first number represents fixed carbon on the dry, mineral-matter-free basis reported to the nearest whole per cent. For example, 61.5 to 62.4 per cent fixed carbon, inclusive, shall be expressed as 62. The second number represents B.t.u. on the moist, mineral-matter-free basis, expressed as hundred of B.t.u. to the nearest hundred. The meaning of 132-A8-F24-S1.6 is explained at the bottom of the second column, page 66.

### Sampling

The coal shall be sampled to represent its condition as sold. Sampling shall be performed in accordance with the Standard Method of Sampling Coal (A.S.T.M. Designation: D 21) of the American Society for Testing Materials.

### Methods of Analysis

The coal shall be analyzed in accordance with the Standard Methods of Laboratory Sampling and Analysis of Coal and Coke (A.S.T.M. Designation: D 271) of the American Society for Testing Materials. Analyses shall be expressed on the basis of the coal as sampled.

## Suggests Bureau as an Aid to NRA Consumer Standards Program<sup>1</sup>

**Q**UALITY standards, grading and labeling constitute an important aspect of "fair trade practices between producer and distributor, and between distributor and customer."

Prices, as every buyer knows, without stated qualities and known quantities are meaningless. Coal is sold by the short ton, sometimes by the long ton, in some areas; package goods are sometimes sold by net weight, sometimes by gross weight; sometimes by full pack, sometimes by half-pack.

Industry itself buys on specifications. These state specifically what must be supplied. Nothing else will be accepted. The same practice is followed by the Federal Government and the better managed states and municipalities in the United States. But the ultimate consumer is nearly always denied protection of this sort. This is true despite the fact that he is surrounded on every side by attempts not only to not inform but to deliberately and maliciously confuse the issue, mis-state the facts, promise the impossible, and charge the preposterous in price.

The work of the American Medical Association, Consumers' Research, the National Bureau of Standards, and the Federal Trade Commission has assembled an enormous mass of facts in proof that private enterprise left to itself will not protect consumers against price extortion and fraudulent misrepresentation of the facts by the unscrupulous dealer. The more honestly conducted concerns and such agencies as The Pure

Food and Drug Administration and the Federal Trade Commission have been wholly unable to stem the tide.

Industry has paid very little attention to standards in the preliminary code hearings. They have been almost entirely ignored in code formulation. In the first 220 codes, covering the most important American industries, only about 70 contain clauses having anything to do whatsoever with standards, grading, and labeling. Most of these clauses are absolutely worthless from the point of view of consuming interests. In some cases they are vague and apt to mislead the consumer. In some cases their effect is the reverse of that desired.

Clauses of this type are those which may be used covertly for price-fixing purposes and which allow—in some cases practically compel—the lowering of quality. There are four cases, for example, where the Code Authority is actually instructed to declare the giving of guarantees beyond a certain point an unfair trade practice, whereas the bulk of the industries affected have long been accustomed to give and live up to guarantees very considerably in excess of these points. In other codes, standards clauses are patently designed to promote arbitrary price-fixing.

As a broad generalization it is fair to say that many of the well-known rules used in the establishment of standards by industry itself—as shown in the work of the American Standards Association, the Commercial Standards Unit of the Bureau of Standards, and the American Society for Testing Materials—have been passed up in the rush of code writing. These rules provide,

<sup>1</sup> Statement made before Group III of the Code Authority Conference, March 7, 1934, Washington Hotel, Washington, D. C., by Robert A. Brady, Special Adviser, Consumers' Advisory Board, NRA.

among other things, that standards should never be established without full and adequate consumer representation.

### ***Sellers Write Codes***

The reason for this situation is simple. The codes are written by and for sellers, whereas standards are drafted in the main by buyers. Those responsible for original code formulation are interested in buying on their own specifications; that is to say, they would participate in the writing of the other fellow's standards. More serious still, this practice represents, by undermining the basic principles of drafting and promulgation, a general weakening of the whole standards movement built up over a number of years by a series of groups of hardworking and disinterested scientists, engineers, and industrialists.

If the codes are to eliminate practices of this sort we feel that the following principles should be adopted by the National Recovery Administration in both code formulation and code administration:

### ***Codes Should Include Standards***

1. Quality and quantity standards and ratings should be provided in all codes. These should be supported by well-defined consumer-understandable, and readily enforceable labels and labeling systems. In most cases scientific and technical information is available for immediate action along this line; in the remaining cases some action to prevent chiseling on qualities and amounts delivered should be taken immediately.

2. All standards, grades, and labeling systems should be promulgated only through a procedure which guarantees adequate consumer and Government representation. This is a well established procedure in all standardized grading practices of such organizations as the American Standards Association and the National Bureau of Standards. No standard should be established over the veto of the consumer or Government representatives, and every Code Authority administering standards provisions should possess both consumer and Government representation.

3. Standards should be so drafted that they (a) promote technical progress, (b) allow the manufacture and/or sale of "Tailormade" commodities to suit individual requirements in industry, (c) allow the freest possible play of con-

Last Fall the Consumers' Advisory Board, in the so-called "Lynd Report," proposed that a consumers' standards board be established to promulgate standards for the protection of the ultimate consumer. Dr. Robert S. Lynd's proposal was published in our January issue.

The problem has been attacked from a different angle by the author of this statement. Dr. Brady believes that a standards bureau should be established and charged with the task of helping the several Code Authorities to promote, promulgate and police standards provisions in the NRA Codes.

sumer choice where individual taste, fashion, and similar factors are of importance.

4. Standard clauses should not be so drawn that they prevent the manufacture or sale of non-standard goods provided (a) health and safety factors are not involved, (b) they are labeled as non-standard, and accurately with respect to their own qualities, (c) they are not so labeled with the intent or effect to deceive, (d) there is no fair proof that their manufacture and sale does not add confusion and unduly advance costs of production in the industry or sale to consumers.

5. Barring health and safety factors no standard should be established which does not promote better efficiency or production and distribution.

6. Any standard grades or labels which tend to promote monopolies should be allowed only on presumption of increased Government participation in the drafting of and increased Government supervision of the industry adopting a standard or standards.

### ***Early Action Needed***

In order to make completely effective these rules and in order to provide necessary guarantees of consumer interests it will be necessary in the administration of the codes to establish at some time or other in the near future a Consumers' Standards Bureau. This Bureau should be provided with a staff of commodity experts, should have at its disposal adequate research funds, and should be charged with the duty of helping the several Code Authorities to establish, promulgate and police the standards provisions of the several codes.

## Broad Petroleum Standards Project Is Proposed Under ASA Procedure

The initiation of a broad and far-reaching standardization program affecting the products of the petroleum industry has been requested of the American Standards Association by the American Society for Testing Materials. The scope proposed by the Society is an extension of that under which the Sectional Committee of the ASA on Methods of Testing Petroleum Products and Lubricants (Z 11), with identical personnel as the A.S.T.M. Committee D-2, has been operating under since 1926. It reads as follows:

*Proposed Scope:* Specifications, methods of test and nomenclature relating to crude petroleum and petroleum products, including lubricants containing petroleum products; but excluding specifications, methods of test and nomenclature relating to petroleum products used as road, paving or waterproofing materials, or relating to organic chemicals or to products used medicinally.

The A.S.T.M. has offered its services as sponsor in the event that a sectional committee is organized.

For years this society has been working on standards for methods of testing petroleum products and lubricants, much of which has cleared through the ASA and been approved as American Standards.

The substantial accomplishments in standardizing methods of test and critical studies of these tests in relation to performance have paved the way for this broad project.

### *Much Work Done*

Since 1930 a large volume of work has been done looking toward specifications for gasoline, motor oils and fuel oils, including Diesel fuels, by the A.S.T.M. In 1932 Stoddard solvent was added to this program. That portion of this work relating to specifications for fuel oil has already been organized under ASA procedure as project K 19.

The A.S.T.M. points out that there are many agencies, such as the Government, states and municipalities, companies, trade associations and technical societies which have shown an increasing interest in specification work of this nature.

Moreover, these products are of great industrial importance and are widely used. Several sectional committees for interrelated materials in the same field are held to be undesirable, because it would be difficult to obtain coordination in the work of these separate groups.

Hence the Society believes that the responsibility for orderly and systematic development and coordination of all standardizing work in the field of petroleum products should be given to one sectional committee organized under the ASA procedure. Individual projects could be assigned by this committee to properly qualified and representative groups for development whenever occasion for such assignments arise.

## Electrical Insulating Materials Sectional Committee Organized

The Sectional Committee on Electrical Insulating Materials, to correlate the standards activities of a number of societies interested in this subject, was organized recently at the offices of the American Society of Testing Materials. The committee will expedite submission of standards developed by the A.S.T.M. to the American Standards Association for approval as American Standards.

This committee will also provide a recognized body to which any work on electrical insulating materials can be referred. Projects on transformer oils and on shellac and synthetic resins now in process in the International Electrotechnical Commission will be covered from the technical standpoint by this new sectional committee.

Organizations represented include the A.S.T.M.,

American Institute of Electrical Engineers, American Railway Association, the ASA Electric Light & Power and Telephone groups, American Transit Association, National Electrical Manufacturers Association and the U. S. Bureau of Standards.

### *Stanley Griswold Flagg, Jr.*

Stanley Griswold Flagg, Jr., who was president of Stanley G. Flagg & Co., Inc., died March 14. Active in industry-wide interests of the valve and fittings field, he early became known as an advocate of standardization. Among his principal interests were the Manufacturers Standardization Society of the Valve and Fittings Industry, the Valve & Fittings Institute, the American Society of Mechanical Engineers and he served for years as a member of the Standards Council of the ASA.

# Wide Range of Symbols Correlated For Power, Radio and Railway Use

New standards covering graphical symbols for Electric Power and Wiring,<sup>1</sup> Radio,<sup>2</sup> and Electric Traction Including Railway Signalling<sup>3</sup> prepared by a sectional committee on Scientific and Engineering Symbols and Abbreviations under the procedure of the American Standards Association, and under the sponsorship of the American Association for the Advancement of Science, American Institute of Electrical Engineers, American Society of Civil Engineers, American Society of Mechanical Engineers, and Society for the Promotion of Engineering Education, are now available in printed form.

In developing these three standards, the committee found that symbols for certain pieces of apparatus were different in these three divisions of the electrical industry and that it was apparently impossible to change the practice in the three fields concerned in any comparatively reasonable length of time. It was therefore decided to print these particular symbols in the standards in *italics* and to clearly point out that they were not approved as American Standard but at the same time to indicate that differences in practice exist. The committee hopes that public notice of the difference in practice will aid to eliminate the conflicts.

## ***Electric Power and Wiring***

These symbols comprise those used for one line and complete diagrams of electric power apparatus, instruments and relays, and maps and connection diagrams. They are limited to apparatus usually encountered in electrical power engineering such as major electrical equipment in power houses, substations, transmission and distribution systems and to system wiring diagrams, and are not intended to cover radio, communication, railway or other allied branches of electrical engineering.

Basic symbols which seem to have widespread use and application and only such symbols, with few exceptions, are given. While the symbols presented do not cover all types of equipment, the

<sup>1</sup> Z10g2-1933. <sup>2</sup> Z10g3-1933. <sup>3</sup> Z10g5-1933.

## **New Graphical Symbol Standards Available**

**Electric Power & Wiring (Z10g2-1933) 20c.**

**Radio (Z10g3-1933) 20c.**

**Electric Traction including Railway Signalling (Z10g5-1933) 40c.**

**These printed standards may be ordered from the American Standards Association, 29 West 39th Street, New York.**

variations in practice can be accommodated with relatively small additions to the basic symbols. This is especially true of the complete diagram symbols for rotating apparatus and transformers where it is impracticable to show all possible connections of parts.

For example, the symbol used to denote windings may be used wherever required in a complete diagram in combination with the basic symbol, to indicate armature and field windings or other connections. The basic symbol principle is also illustrated by reference to symbols for transformers and disconnecting switches. These symbols are derived from a basic single-phase device and accompanied by a basic complete symbol illustrating the use of the single-phase symbol to make up any desired polyphase combination.

In practice, descriptive notes in abbreviated form are often inscribed adjacent to the symbol figure. These notes give further information concerning the characteristics of the apparatus. A suggested list of such supplemental descriptive data under the subheading "Optional Notes" is given.

## ***Radio Symbols***

The committee developed these symbols in close collaboration with the Committee on Standardization of the Institute of Radio Engineers from whose work the symbols were largely derived. The list comprises 50 symbols and covers tubes, transformers, condensers, inductors and similar apparatus used in radio work.

### ***Traction, Railway Signalling***

These standards comprise more than 470 graphical symbols used for diagrams for electric traction including railway signalling. They are limited to apparatus usually encountered in electrical engineering and construction of all classes of electric traction including railway signalling, such as electrical equipment in power houses, substations, transmission systems and distribution systems; electrical equipment of electrically-operated cars and locomotives; and electrical equipment and associated equipment used in railway signalling.

In general, these symbols are intended for use on one line diagrams of multiphase alternating-current systems, or on complete wiring diagrams of single-phase alternating-current and two-wire direct-current systems.

Only those symbols which have widespread

practical use among operating companies and electrical manufacturing companies have been included. Many of the symbols included in the International Electrotechnical Commission Graphical Symbols for Electric Traction have been omitted, as the Committee was unable to find them in use in this country.

A number of established standards for symbols received consideration by the Committee, the more important of which were as follows: I.E.C. Document R.M. 38; N.E.L.A. Publication 256-19, 1926; Report of Special Committee on Engineering Symbols, A.E.R.A. 1926; Apparatus Handbook, N.E.M.A. 1928; Conventional Signs for Car and Locomotive Wiring Diagrams (Standard No. 13) as used by the railway departments of the General Electric Company and the Westinghouse Electric and Manufacturing Company; Symbols for Signals of the Signal Section, American Railway Association.

### **Constant Current Transformer Standards Are Now Available**

The standards for Constant Current Transformers of the Moving Coil Type which were approved as American Standard in 1933 are now available in printed form at a cost of 30 cents per copy either from the American Standards Association or the American Institute of Electrical Engineers, by whom the standards were submitted to the ASA for approval. Discounts for quantity orders are available and will be sent on request.

These standards cover transformers of the type ordinarily used to supply street lighting circuits of the series type using either incandescent or arc lamps. The purpose of these standards is to define the rating for transformers of the type covered and to lay down the conditions upon which acceptance tests are based.

The standards are divided into the following sections: Service Conditions, Definitions, Rating, Heating, Efficiency and Losses, Dielectric Tests, Insulation Resistance, Variation in Voltage and Lead Markings.

### **Hosiery Standards Submitted; Machine Tests Wear Qualities**

The General Federation of Women's Clubs has submitted to the trade standards division of the Bureau of Standards, a proposed specification for women's full-fashioned hosiery.

When, early in 1933, the General Federation of Women's Clubs undertook the development of a specification for full-fashioned hosiery as a basis for the labeling of standard grades, the

Federation requested the Bureau to provide suitable test methods.

Among the properties for which tests were requested were the ability of stockings to stretch adequately, the resilience, bursting strength, and ability to resist the formation of runs. Because existing test methods and equipment did not appear to be adequate for the purpose, a new testing machine was developed.

During the past year the Bureau of Standards has developed a machine, which provides a convenient method for measuring the behaviour of a stocking when the upper part of the leg of the stocking is repeatedly distended in a way which subjects it to stresses similar to those which occur at the knee and at the garter clasps of a stocking in use.

A paper describing the machine and giving some illustrative results is in course of preparation. Drawings showing the details of the construction of the machine may be obtained from the textile section, Bureau of Standards, on request.

### **Willard Heads Illinois**

Arthur Cutts Willard, one-time president of the American Society of Heating and Ventilating Engineers and for years active in American Standards work, has been elected president of the University of Illinois.

Until recently professor of heating and ventilation and for the past year dean of the college of engineering at Illinois, President Willard is a member of the Ventilation Code Committee. He was ventilating consultant to the late Clifford M. Holland in building the Holland Tunnels, New York.

# American Standard Safety Codes Play Important Part in NRA

*Recovery Administrator Orders Employers to Provide for Safety and Health of Employees; Standards Required*

by  
**Cyril Ainsworth,**

*Assistant Secretary,  
American Standards Association.*

Of all the sections of the National Industrial Recovery Act, Section 7(a) on conditions of employment has drawn most spotlight. This is particularly true of the divisions of the section pertaining to wages and hours of labor, and the right of employees to organize and bargain collectively through representatives of their own choosing.

Focusing the spotlight on these clauses has, however, relegated to the background one other point of extreme importance to both employees and employers, namely—that employers shall comply with

“ . . . and other conditions of employment, approved or prescribed by the President.”

Paragraph (b) of Section 7 also states—

“The President shall, so far as practicable, afford every opportunity to employers and employees in any trade or industry or subdivision thereof . . . to establish by mutual agreement, the standards as to . . . , and such other conditions of employment as may be necessary . . . to effectuate the policy of this title; and the standards established in such agreements, when approved by the President, shall have the same effect as a code of fair competition, approved by the President. . . .”

Nowhere in the Recovery Act do we find a definition of what is meant by the phraseology “other conditions of employment.” General Johnson has given a partial definition of the phrase in item 7 of National Recovery Administration Bulletin No. 2 dated June 19, 1933. Paragraph (c) of this item says:

“Conditions of employment should contain necessary safeguards for the health and safety of the workers and for the stabilization of their employment.”

Thus employers and employees are charged with the responsibility, under the Recovery Act, of establishing by mutual agreement standards governing accident and occupational disease prevention programs. When such standards have been established, and when they have been approved by the President, they will have the same effect as a

code of fair competition approved by the President. The tremendous importance of this obligation resting upon employer and employee alike, therefore becomes self-evident.

## *Little Has Been Done*

To date little has been done by employers and employees to avail themselves of the opportunity afforded by the Recovery Act to reach agreements on standards for accident and occupational disease prevention. To those who have been closely associated with the accident prevention movement, this failure to take advantage of the facilities of the Recovery Act for the development of programs, which if executed will tend to wipe out the terrific economic waste due to the accident situation in the industries of this country, is difficult to understand.

Statistics prepared by the National Safety Council show that for 1933 the cost of industrial accidents for compensation and medical services, was two billion dollars. That was the cost during a year of the lowest point of industrial activity, and if the costs of such items as spoilage of material and machines, interruption of schedules, lost time by other persons than the injured, training of new employees, etc., are added to the compensation and medical costs, we find the total cost of industrial accidents for 1933, about eight billions of dollars.

This charge against American industry is approximately one-third of the total Federal public debt as of March 1, 1934. Any program which employers and employees can institute to remove this drain on the industrial resources would be a decided step toward industrial recovery.

It should be understood that it is not the writer's intention to create the impression that very

little accident prevention work is now being carried on. Tremendous steps forward have been taken during the past twenty years by many industrial groups and individual establishments, but there has been considerable chiseling on the part of recalcitrant minorities in the accident prevention field as in other fields. The result has been a retarding of the progress that should have been possible, and an unwarranted charge against the cost of production which in turn is reflected in the increased cost of products to the consumer.

The Recovery Administration has recognized these points, and many codes of fair competition recently approved have had inserted in them clauses requiring every employer to provide for the safety and health of employees at the places of their employment. It has also required code authorities to submit to the Administrator within six months after the effective date of the code, standards for safety and health.

#### ***Secretary Names Committee***

Miss Frances Perkins, Secretary of Labor, realized that many code authorities would not have sufficient background to enable them to develop such standards. She organized a committee to develop basic standards for recommendation to code authorities. The committee was composed of representatives of the NRA Administrator, the NRA legal department, the three advisory boards, several federal administrative departments, the National Safety Council, the U. S. Chamber of Commerce, the American Federation of Labor, the National Bureau of Casualty and Surety Underwriters, and the American Standards Association is represented by the writer.

This committee held several meetings for the purpose of developing certain fundamental standards which could be used by special safety committees of code authorities as the basis of a program of accident prevention. These standards cover such matters as safety organization, lighting, ventilation, sanitation, guarding of machinery, use of protective clothing, removal of poisonous dusts, gases, and fumes, collection of accident statistics, construction of buildings and means of egress. These basic standards are being mimeographed and will be available upon request to the Bureau of Labor Statistics, U. S. Department of Labor.

The value of the safety code program of the American Standards Association was demonstrated once more through the use in every possible case of safety codes developed under ASA procedure. The work of the committee was made fairly simple through the designation of particular ASA codes as the basic standards. An additional value rests in the fact that the code authorities will realize that the standards which are being recommended are practical, technically correct, and nationally acceptable.

#### **OFFICE ORDER NO. 71 March 14, 1934**

#### **Standards of Health and Safety**

In exercise of the President's power under the National Industrial Act to prescribe conditions of employment, the following provisions will hereafter be included in every code which has not, at this date, been formally submitted by the industry:

"Every employer shall provide for the safety and health of employees during the hours and at the places of their employment.

"Standards for safety and health shall be submitted by the code authority to the Administrator within six months after the effective date of the code."

These provisions, including similar ones now embodied in most codes, will be given execution in the following manner:

1. Each code authority will create a committee on safety and health which will study the number and causes of accidents and health hazards in the industry and report a comprehensive program.
2. In these programs developed by the committee on safety and health, consideration will be given to the following:
  - (a) A statement of the average accident experience in the industry; a comparison of the experience of employers most successful in reducing accidents; and a plan for uniform accident reporting in the industry.
  - (b) Preparation of a statement showing the possible benefits to individual employers, individual employees, and the industry as a whole, through continuous organized safety efforts.
  - (c) A recommended plan for organized safety work for various types and sizes of companies.
  - (d) Minimum standards for safety and health for the industry.

By direction of the Administrator:

3158

Alvin Brown

The committee also prepared a statement setting forth the part which proper industrial accident prevention programs can play in the recovery efforts being carried forward under the NRA, and the principles on which such programs should be based. This was transmitted to the administrator

by the Secretary of Labor and resulted in the issuance of administrative order number 71 requiring the establishment of committees of safety and health by code authorities creating codes still to be submitted to the administration for approval, and also setting forth the principles on which accident prevention programs which are to be developed should be based.

The ASA safety code program will be of great value to individual industries in developing accident prevention programs under this administrative order. The program dovetails into two of the principles set forth in the order reproduced herewith:

1. Accident statistics.
2. Minimum standards for safety and health.

Any compilation of statistics to be of value for comparative purposes and to determine the underlying causes, must be made on a uniform basis. The reporting of such statistics by individual establishments to code authorities should be made as easy as possible. Such reports are now made to insurance companies and governmental agencies, and for efficiency reasons, as well as to maintain accuracy, reports to all groups should be made on a uniform basis.

### ***Committee Is Working***

A sectional committee is now developing a standard on methods of reporting and compiling accident statistics. All of the important groups just mentioned are represented on this committee and are therefore in a position to work out in collaboration with other groups, the most efficient methods for reporting, compiling, and what is more important, interpreting the accident records of industrial groups.

Mention has already been made of the use of the ASA safety codes in the development of basic standards applicable to all industries. Other ASA codes are applicable to individual industries and furnish not only minimum standards of safe practice in general plant operations within a particular industry, but also furnish in some cases, detailed specifications for the manufacture of specific classes of machines.

All of these codes will form the nucleus for a group of minimum standards which any code authority might adopt for the removal of accident hazards in industrial establishments. The adoption of such standards by code authorities will not, of course, relieve the plants operating under the jurisdiction of such authorities from complying with any local laws or regulations enforced by existing governmental agencies.

In this respect the ASA program again becomes of assistance because of the growing tendency

### **Swimming Pool Standards Needed**

American health standards for swimming pools are needed in this country, according to Charles H. Capen, Jr., sanitary engineer. In an article in *Beach & Pool*, February, 1934, the author says that standard requirements for purity of water would be a boon to the pool construction industry, pool operators, and the public.

toward the adoption of ASA codes as the basis of local regulations by state and municipal regulatory bodies. There is, therefore, very little conflict technically between many of the local requirements and the national standards.

The present group of American Standard Safety Codes will not completely satisfy all the demands that will be made for minimum standards. There are gaps in the list that will have to be filled in, particularly in the field of health standards. The facilities of the ASA machinery are available to any industrial group that desires to set up minimum standards for health and safety under the administrative order.

The Safety Code Correlating Committee, which is a national advisory committee to the ASA, and under the auspices of which a large part of the present ASA safety program was initiated, will be glad to consider any proposals for the establishment of additional safety codes that may be needed, and will make definite recommendations to the Standards Council of the ASA concerning such standards.

### **Petroleum Institute Now Is an ASA Member Body**

The American Petroleum Institute, the trade and technical association of the industry, has joined the American Standards Association as a Member Body and will have representation on the Standards Council. For years the Institute has co-operated with the ASA, and has actively participated in 17 projects. It is represented on the Safety Code Correlating Committee also.

The Petroleum Institute was organized in 1919 as an outgrowth of the Petroleum War Service Committee, and has more than 3,500 members.

There are now 38 member bodies (technical and trade groups and Government departments) and about 400 companies on the roster of the ASA.

# First Sanitation Code, Focused on Employees' Health, Underway

*American Standards Committee Has Submitted Draft of Regulation for Vote; U. S. Bureau of Health is Sponsor*

Before the adoption of laws granting compensation for industrial accidents, labor leaders and industry both were engaged in organized accident prevention work. State and federal compulsory compensation legislation has accelerated accident prevention work. Prior to this effort, the loss of life and the economic loss to industry and labor far exceeded in many instances the loss from illness.

Since this organized effort to reduce accidents has been effective, the reverse is true; the loss from illness far exceeds that due to accidents. As would be expected, the same group that was responsible for the success in accident prevention work was the first to start, in an organized manner, direct measures for the prevention of illness among occupational groups. They were particularly concerned with diseases caused by or spread because of improper plant sanitation.

Benefits of standardization have been clearly demonstrated in many manufacturing, building and engineering enterprises through safety codes developed under the procedure of American Standards Association. The success of safety codes led to the promotion of a standard code for industrial sanitation, and the Association agreed to undertake development of a code to represent the minimal standards in industrial sanitation, known as a Safety Code for Industrial Sanitation.

One of the first tasks of this committee was to study the field already covered by similar codes, and determine upon any further research required.

A review of municipal, county and state regulations governing industrial sanitation, showed that efforts exerted by the majority of states failed to cover the field adequately. A few states had adopted separate industrial sanitation codes, but most of them had only partially covered the field by such rules as had to do with sanitation under different sections of their labor, health and building codes. Even less was found in regulations dealing with this subject in the various municipal ordinances.

## *How the Industrial Sanitation Code was Developed under ASA*

In his report, Dr. R. R. Sayers, medical officer in charge, U. S. Bureau of Public Health Service, describes the routine by which this code was developed under American Standards Association procedure:

One of the agencies interested in the subject to be coded was chosen to act as sponsor. (In this code, the United States Public Health Service was chosen.) A committee was named consisting of representatives from all agencies interested in the subject. In this work public utilities, manufacturers, engineers, architects, labor organizations, and state and federal governmental units were represented.

First the committee studied the field covered by similar codes to determine the scope of the work and to decide whether further research would be required.

Drafts of the work have been submitted to the Sectional Committee. If approved, the work will be passed upon by the Safety Code Correlating Committee and the Standards Council. It will then become an American Standard.

---

The first draft contained regulations concerning all factors related to industrial sanitation. Due to the differences between the various states and communities within states as regards their geographical location, economic status and industrial activities, it was difficult to formulate

rules which would be fair and adequate and at the same time fully cover the field.

Therefore, the code, Z4,<sup>1</sup> was divided into several sections: one on manufacturing establishments; one on mining and quarrying; and one on camp labor and temporary activities such as erection and demolition of buildings. The code in general was prepared with the understanding that it would be representative of the minimum that shall be required in industrial sanitation, and not the best that could be obtained.

Some of the important sanitary regulations included in this minimal code deal with water supply, waste and sewage disposal, hazardous processes and personal service rooms. It is the opinion of the committee, developing this code, that with intelligent observance of the rules offered therein, workers will be assured a sanitary place in which to work, and that if an industrial plant finds it impossible to observe such general rules as specified, it should not be permitted to carry on.

The matter of enforcement of these rules and regulations has purposely been omitted from this code. The adoption of it in whole or in part by any city, county or state legislative body would necessarily be preceded or followed by the setting up of the proper enforcing authority and adequate measures for securing inspection and reporting of sanitary conditions in industry. Aside from its value to law enforcement bodies, it may well serve as an aid in writing up agreements between labor and industry and insurance carriers underwriting compensation insurance.

It may be expected that the observance of the regulations furnished in this code will aid to prevent illness among industrial employees and others in the community by insuring safe water supply, proper disposal of waste, efficient ventilation and heating of plants, and education of the worker in matters of personal hygiene.

Because the municipal standards in many industrial communities are influenced by standards prevailing in their industrial plants, adoption of this code generally by such establishments not only will greatly reduce the loss of life and economic loss in industry due to preventable diseases, but will also greatly aid to promote better public health in these communities.

<sup>1</sup> Z4—Safety Code for Industrial Sanitation.

### Domestic Anthracite Coal Burner Standard Initiated

A proposed Commercial Standard for Domestic Burners for Pennsylvania Anthracite (Underfeed type) was discussed on March 14 at a general conference in New York. During the preceding 18

months, manufacturers of coal burners and the Anthracite Institute, in cooperation with the Division of Trade Standards of the Bureau of Standards, had developed the proposal.

The provisions of the proposed standard were modified to agree with the opinion of various groups represented at the conference and the revised document has been circulated among producing, distributing and consuming groups interested.

### Halsted Joins Staff of ASA

Arthur Halsted, for 14 years with the U. S. Bureau of Standards, has been appointed a member of the staff of the American Standards Association. He will have his headquarters in Washington.

He was graduated from Case School of Applied Science, Cleveland, with a B.S. in E.E. in 1908, having studied two years at Kenyon College, Gambier, Ohio. During the war he served as lieutenant in the air service, and joined the Bureau following the armistice.

His work has been in the electrical field, particularly in connection with the National Electrical Safety Code, National Electrical Code and Government specifications and tests.

He served as a member of several American Standards Association sectional committees in connection with his work with the Bureau of Standards, and is a member of several technical societies.

### Classification of Lubricants for Industrial Purposes

A General Conference on the proposal to develop a standard method of classification of lubricants for industrial use, based upon viscosity numbers, has been called by the American Standards Association for Wednesday, April 18, 1934, at 10:00 a.m. This project was suggested by The American Society of Mechanical Engineers which has pointed out that viscosity should be considered as a dimension of a lubricant and not as an indication of quality.

The A.S.M.E. also called attention to the advantages of a standard classification of industrial lubricants, indicating that machine designers and builders, and industries using lubricants, and petroleum producers as well, would be benefited through the development of such an American Standard.

The conference was postponed from February 6th to allow interested groups time to canvass their memberships. Representatives of 23 national organizations have been invited.

## Oil, Gasoline Separators Will be Standardized

First steps were taken to establish an American Standard for oil and gasoline separators for installation in the drains of garages and other buildings on March 20, when a committee was organized in New York, representing manufacturers of these devices, the consumers and municipal bureaus.

The fire department of the City of New York and sewer departments of four Boroughs of New York, White Plains, N. Y., and Waterbury, Conn., sent delegates, in view of the serious explosion hazard of inflammables entering sewer systems.

The new committee is to be designated as Subcommittee No. 9 of the Sectional Committee on the Standardization of Plumbing Equipment, with William C. Groeniger as chairman. The latter was formed in 1928 under the procedure of the ASA with the American Society of Sanitary Engineering and The American Society of Mechanical Engineers as joint sponsors.

Joseph J. Crotty, president of the A.S.S.E., presided at this first meeting and was elected permanent chairman of the Subcommittee. Mr. Gerhard Wagner was selected as its secretary.

## Yarn Maker Controls Quality of Fabrics

To maintain quality standards in manufactured goods, it seems reasonable that the quality of the basic materials be maintained. Here, in brief, is the plan developed by the Viscose Company, new York, in its attempt to *popularize quality*, in price-minded markets.\*

Briefly, the quality control plan works like this:

The weaver of a cloth containing yarn produced by the Viscose Company is asked to submit his cloth to laboratory tests. If the weaver agrees, the laboratory tests it for dry-cleanability, washability, sun-fastness and abrasion, and other qualities.

If the fabric passes these rigid tests the cloth is entitled to carry the Crown-Tested Quality Grade Mark, and the weaver contracts not to change in any way the construction, finish, etc., of the cloth.

The cloth is now sold by the weaver or converter to cutters, retail stores, drapery manufacturers, etc., and the grade mark follows through and appears in garments and

\* Abstracted from an article by John A. Spooner, Merchandising Director, The Viscose Company, printed in Executives Service Bulletin, March, 1934.

other merchandise made from this fabric, thus identifying the material to the ultimate consumer.

Although not all of the poundage produced by this company comes under this grade mark, it is reported that more and more weavers are sensing the importance of tested fabrics and are entering into these quality mark contracts with the yarn producer.

## 600 Attend Sessions of A.S.T.M. Regional Meeting in Washington

More than 600 members of the American Society for Testing Materials attended the 1934 regional meeting of the society from March 5 to 9 in Washington. The schedule included 150 separate sessions, a symposium on Outdoor Weathering of Metals and Metallic Coatings, and a dinner meeting.

Under the sponsorship of A.S.T.M. Standing Committees A-5 on Corrosion of Iron and Steel, and B-3 on Corrosion of Non-ferrous Metals and Alloys, five papers were presented and discussed. This material will be published during the Summer, it is expected.

Addresses on the relation between the U. S. Navy and industry, problems before the Consumers' Advisory Board of the NRA and difficulties encountered by the PWA, were given following the regional dinner.

Many of the committees, which took part in the 1934 Group Committee meetings, voted to recommend new proposed standards. Several will submit to letter ballot of their members proposed changes in existing specifications and standard methods, and the adoption as standard of items which are now tentative. Many of these actions will be ready for submission to the Society at its annual meeting June 25 to 29 in Atlantic City. (Full details of these meetings appear in the A.S.T.M. Bulletin, March, 1934.—Ed.)

## India May Organize Standardization Body

Plans are under way to organize a standards association in India, the only British colony which has no such body, according to Sir Stanley Patton, director-general of the Indian Stores Department, London. British standards are used by this department and the Indian Railways, with modifications to cover local needs.

## Status of Transportation Projects

The status of all projects concerning transportation problems under ASA procedure, with the exception of the safety code projects, is summarized in the following review. The report of the safety code projects was published in our issue of November, 1933.

The data presented in this review are taken from the files of the American Standards Association and are corrected to March 1, 1934, bringing up-to-date the review of projects published in the issue of April, 1933.

**E2-1923—Design for Joint Plates for Seven-Inch Girder-Grooved and Guard Rails**

**E3-1923—Design for Joint Plates for Nine-Inch Girder-Grooved and Guard Rails**

*Sponsor—American Transit Association.*

These two standards have been unchanged since their approval in 1923 following their submittal by the American Electric Railway Association (now the American Transit Association).

**E4-1933—Design for Seven-Inch Girder-Grooved Rail**  
(A.T.A. Section No. 122 ER 7B)

**E5-1933—Design for Nine-Inch Girder-Grooved Rail**  
(A.T.A. Section No. 134 ER 9B)

**E6-1933—Design for Seven-Inch Girder-Guard Rail**  
(A.T.A. Section No. 140 ER 7B)

**E7-1933—Design for Nine-Inch Girder-Guard Rail**  
(A.T.A. Section No. 152 ER 9B)

**E8-1933—Seven-Inch 82-lb Plain Girder Rail and Splice Bars for Use in Paved Streets**  
(A.T.A. Rail Section No. 082 ER 7A)

**E9-1933—Seven-Inch 92-lb Plain Girder Rail and Splice Bars for Use in Paved Streets**  
(A.T.A. Rail Section No. 092 ER 7A)

**E10-1929—Specifications for Special Track Work Materials**

**E11-1933—Seven-Inch 102-lb Plain Girder Rail and Splice Bars for Use in Paved Streets**  
(A.T.A. Rail Section No. 102 ER 7A)

*Sponsor—American Transit Association.*

This group of standards covering the design of girder-guard and girder-grooved rails together with the type of joint bars or splice bars for joining the rails were developed under the sponsorship of the American Transit Association and approved by ASA in 1923 and 1926. Of these the first four were submitted as existing standards and the standards for projects E8, E9, E10, and E11 were developed by a sectional committee. The work of this sectional committee was completed in 1929, at which time Specifications for Special Track Work Materials—E10-1929, was approved, and the sectional committee was discharged.

Following a period of trial of these various standards it became evident to the sponsor, the American Transit Association, that certain changes would be desirable. Accordingly, in 1931, minor revisions largely consisting of a rearrangement of data given in the form of notes and tables were made in all of the standards in this group except E10.

Also, in the standards for projects E6 and E7, slight changes in dimensions were made in order to facilitate the attachment of splice bars used to join these girder-guard rails to the corresponding girder-grooved rails covered by the standards for projects E4 and E5. These revisions adopted by the American Transit Association in 1932 were accepted by other interested groups in the field covered by these standards.

The canvass made by the A.T.A. also included the question of the desirability of granting proprietary sponsorship to this group for future revisions. Following this canvass the standards were submitted and approved by ASA in June, 1933 under the proprietary sponsorship method. In connection with the approval of these revisions the standards for projects E4, E5, E6, E7, and E8 were approved as American Standard and those for projects E9 and E11 as American Tentative Standard.

## R. L. Ireland Is Elected To ASA Board of Directors

R. Livingston Ireland, Jr., Executive Vice President of the Hanna Coal Company, Cleveland, has been elected a director of the American Standards Association.

Mr. Ireland has been serving on the Coal Mine, Tracks, Switches and Signals sectional committee of the ASA since it was formed in 1930, representing the American Institute of Mining Engineers. Enlisting in the world war from Yale, he joined the Naval Reserve Flying Corps and served at Hampton Roads, Va., and later was commanding officer at Morehead City, N. C.

He served as mining engineer for several years before becoming manager of the bituminous department of the M. A. Hanna Company. In 1930, when the Hanna Coal Company was organized, he was appointed to his present position.

The following were reelected as members of the Board of Directors:

W. T. Rossell, American Transit Association; Quincy Bent, American Society for Testing Materials; L. A. Downs, American Railway Association; F. E. Moskovics, Society of Automotive Engineers.

### Ask ASA Library For Publications

New publications on standards and simplified practice may be purchased or borrowed from the Library of the American Standards Association, 29 West 39th Street, New York.

The library has on file more than 12,000 American and foreign standards.

Members of the ASA have the privilege of calling upon the Library for research assistance in connection with standards and standardization.

COMMERCIAL STANDARDS FOR MARKING OF GOLD FILLED AND ROLLED GOLD PLATE ARTICLES, OTHER THAN WATCH CASES (CS47-34). Available from Superintendent of Documents, Government Printing Office, Washington, D. C., and from ASA office; 5 cents.

This commercial standard was announced as approved in the February, 1934, issue of Industrial Standardization and Commercial Standards Monthly.

SIMPLIFIED PRACTICE RECOMMENDATION COVERING SIZES OF CANNED PEAS (R149-33). Available from Superintendent of Documents, Government Printing Office, Washington, D. C., and ASA Office, 5 cents.

In this recommendation, which was proposed and formulated by the industry, the size of sieve openings to separate peas into three size grades, designated respec-

## Mutual Casualty Companies To Get Safety Code Service

The National Association of Mutual Casualty Companies has made available the services of the American Standards Association to all of its members, by increasing its annual dues.

This will give the casualty companies of the association first-hand information on development of safety codes, an important phase of ASA work.

tively as small, medium and large, are given. The three sizes now recommended replace six sizes into which canned peas were formerly packed.

AMERICAN STANDARDS FOR PLAIN AND THREAD PLUG AND RING GAGE BLANKS (B47-1933). Published by the Bureau of Standards as Commercial Standard CS8-30. Available from Superintendent of Documents, Government Printing Office, Washington, D. C., or ASA office.

Approval of this standard was announced in the November, 1933, issue, Industrial Standardization & Commercial Standards Monthly (p. 201).

## Sizes and Kinds of Milling Cutters Are Again Reduced

Simplified Practice Recommendation on Milling Cutters (R36-34) has been given sufficient written approval by the industry and will become effective April 15, the Division of Simplified Practice, Bureau of Standards, announced.

The original recommendation on milling cutters was formulated by the industry in 1925. Further reduction in the number of stock sizes and varieties of milling cutters has now been achieved.

## Recommends Reduction in Stock Sizes of Hypodermic Needles

A proposed revision of Simplified Practice Recommendation on Dental Hypodermic Needles (R10S-29) has been mailed by the division of Simplified Practice, Bureau of Standards to all interests of the industry for their approval.

The recommendation would greatly reduce the number of sizes which were approved for stock sizes in the 1929 draft.

## Foxboro Co. Joins ASA

The Foxboro Company, Foxboro, Mass., has become a member of the American Standards Association. The company manufactures controlling, recording and indicating instruments.